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I HEREBY CERTIFY that annexed hereto is a true copy of documents filed in connection with the following patent application:

Application No. S990561

Date of Filing 6 July 1999

Applicant JOSEPH FREDERICK FRITSCH, a U.S. Citizen of 21 The Sweepstakes, Ballsbridge, Dublin 4, Ireland & ROXANNE YVONNE FRITSCH, a U.S. Citizen of 21 The Sweepstakes, Ballsbridge, Dublin 4, Ireland.

Dated this 27 day of July, 2000.



An officer authorised by the
Controller of Patents, Designs and Trademarks.

REQUEST FOR THE GRANT OF A PATENT

PATENTS ACT, 1992

The Applicant(s) named herein hereby request(s)

☐ the grant of a patent under Part II of the Act

☒ the grant of a short-term patent under Part III of the Act

on the basis of the information furnished hereunder.

1. Applicant(s)

Name JOSEPH FREDERICK FRITSCH and ROXANNE YVONNE FRITSCH

Address Both of 21 The Sweepstakes, Ballsbridge,
Dublin 4, Ireland.

Description/Nationality Both U.S. Citizens.

2. Title of Invention "A protective device"

3. Declaration of Priority on basis of previously filed application(s) for same invention (Sections 25 & 26)

<u>Previous filing date</u>	<u>Country in or for which filed</u>	<u>Filing No.</u>
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4. Identification of Inventor(s)

Name(s) of person(s) believed
by Applicant(s) to be the inventor(s)

JOSEPH FREDERICK FRITSCH and ROXANNE YVONNE FRITSCH

Address

Both of 21 The Sweepstakes, Ballsbridge, Dublin 4, Ireland.
Both U.S. Citizens.

5. Statement of right to be granted a patent (Section 17 (2) (b))

6. Items accompanying this Request - tick as appropriate

- (i) ☒ Prescribed filing fee (£ 50.00)
- (ii) ☐ Specification containing a description and claims
☒ Specification containing a description only
☒ Drawings referred to in description or claims
- (iii) ☐ An abstract
- (iv) ☐ Copy of previous application(s) whose priority is claimed
- (v) ☐ Translation of previous application whose priority is claimed
- (vi) ☐ Authorisation of Agent (this may be given at 8 below if this Request is signed by the Applicant(s))

7. Divisional Application(s)

The following information is applicable to the present application which is made under Section 24 -

Earlier Application No:

Filing Date:

8. Agent

The following is authorised to act as agent in all proceedings connected with the obtaining of a patent to which this request relates and in relation to any patent granted -

Name

Address

F.F. GORMAN & CO.

54 Merrion Square,
Dublin 2,
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9. Address for Service (if different from that at 8)

F.F. GORMAN & CO., at its address as recorded for the time being in the Register of Patent Agents.

F.F. GORMAN & CO., Authorised Patent Agents

BY: _____ EXECUTIVE

Signed

Name(s) :

Capacity (if applicant is a body corporate) :

Date

July 6. 1999

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"A protective device"

The present invention relates to a protective device, and in particular, to a protective device for protecting an interface means, for example, a read and/or write head, or a pin connector of a read and/or write unit of the type in which the interface means is provided for reading and/or writing data to or from a data carrier, such as, for example, a floppy disc, an optical disc, a data cartridge unit or an integrated circuit chip of the type which stores computer games and the like.

10 In this specification the term read and/or write unit is used in this specification to include at least the following within its means, an optical disc drive unit, for example, a compact disc player and/or recorder unit, a CD ROM read and/or write drive unit, a floppy disc drive, a tape drive unit, for example, a magnetic tape drive unit, such as, a tape cassette player and/or recorder or a tape cassette read and/or write unit, a data cartridge tape drive unit, and a read and/or write unit of the type adapted to read and/or write, but in particular to read an integrated chip in which a computer game is stored. The term interface means is used in this specification to mean any type of interface which interfaces with a data carrier in a read and/or write unit for reading from and/or writing to the data carrier. Such interface means would at least

15 include a read and/or write head, which may be a magnetic head or an optical head, or a combination of both, and a pin and/or socket connector for connecting to a corresponding pin and/or socket connector of an integrated circuit chip of the type on which a computer game is stored. Such read and/or write units typically are provided with a receiving area for receiving the data carrier which may be, for

20 example, a floppy disc, an optical disc, a tape cassette or a data carrier tape cassette, or an integrated circuit chip housed in housing with a pin and/or socket

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connector. The interface means, typically is located in or adjacent the receiving area for interfacing with the data carrier for in turn reading and/or writing data to or from the data carrier. Such read and/or write units may be suitable for receiving data carriers on which the data is stored in digital and/or analogue form and may be for
5 music and/or computer data, or otherwise.

Such read and/or write units are well known. As discussed above, the interface means, typically, a read and/or write head or a pin and/or socket connector are located in or adjacent the receiving area for receiving the data carrier. In general, the
10 read and/or write heads of such units, or pin and/or socket connectors are relatively fragile components and are easily damaged by, for example, shock and the like. Additionally, if the interface means of such read and/or write units become soiled with dust or dirt, in general they become inoperable. Because of the construction of many such read and/or write units, dust and dirt can readily easily collect on the
15 interface means, and in particular, can collect on the interface means when the read and/or write unit is not in use.

There is therefore a need for a protective device which protects an interface means of the type hereinbefore defined of a read and/or write unit of the type hereinbefore
20 defined from shock. There is also a need for a protective device for protecting an interface means of the type hereinbefore defined of a read and/or write unit of the type hereinbefore defined from the collection of dirt and dust when the unit is not in use.

25 The present invention is directed towards providing such a protective device.

According to the invention there is provided a protective device for protecting an interface means of the type hereinbefore defined of a read and/or write unit of the type hereinbefore defined, the read and/or write unit comprising a receiving area for receiving a data carrier, the interface means being located in or adjacent the receiving area for interfacing with the data carrier for reading from and/or writing to the data carrier, the protective device comprising a carrier means for engaging in the receiving area of the read and/or write unit, and a protecting means carried on the carrier means for engaging the interface means for protecting the interface means from shock when the carrier means is engaged in the receiving area,

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Additionally the invention provides a protective device for protecting an interface means of the type hereinbefore defined of a read and/or write unit of the type hereinbefore defined, the read and/or write unit comprising a receiving area for receiving a data carrier, the interface means being located in or adjacent the receiving area for interfacing with the data carrier for reading from and/or writing to the data carrier, the protective device comprising a carrier means for engaging in the receiving area of the read and/or write unit, and a protecting means carried on the carrier means for engaging the interface means for protecting the interface means from dirt and/or dust when the carrier means is engaged in the receiving area.

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In one embodiment of the invention the protecting means is adapted for engaging the interface means with a portion of the interface means nested into the protecting means.

25 In another embodiment of the invention the protecting means is adapted for receiving the portion of the interface means nested into the protecting means for

protecting the portion of the interface means from dust and/or dirt.

In another embodiment of the invention the area of the protecting means is at least similar to the area of the portion of the interface means to be protected from dust and/or dirt, and preferably, is of area greater than the area of the portion of the interface means to be protected. Advantageously, the area of the protecting means is such that as well as engaging the portion of the interface means to be nested into the protecting means, a portion of the protecting means extends around the periphery of the portion of the interface means to be nested so that that portion of the interface means is effectively embraced by the protecting means.

In one embodiment of the invention the protecting means is of a resilient material, and in another embodiment of the invention the protecting means is of a flexible type material.

In a further embodiment of the invention the protecting means is of a resilient/flexible type material.

Ideally, the protecting means comprises a plurality of fibres adapted to extend towards the portion of the interface means to be protected, and ideally, the fibres are provided in the form of a brush, the area of the brush defined by the fibres being the area of the protecting means.

Ideally, the brush is also adapted for cleaning the interface means either while the carrier means is being inserted into the receiving area, or when the carrier means is in the receiving area and the read and/or write unit is activated. In one embodiment

of the invention the carrier means is adapted for engaging in a receiving area of a disc drive unit, and the protecting means is located on the carrier means in a location which corresponds to the rest position of the interface means when the unit is inactive so that as the read/write head attempts to initially read data it moves into and out of the protecting means, thereby urging the portion of the interface means to be engaged by the protecting means into and out of engagement with the protecting means for cleaning the portion of the interface means.

In a further embodiment of the invention the protective device is adapted for protecting an interface means in the form of a read/write head of a disc drive unit, for example, an optical disc drive unit or a magnetic disc drive unit. In a further embodiment of the invention the protective device is adapted for protecting a read/write head of a tape drive unit. In a still further embodiment of the invention the protective device is adapted for protecting an interface means in the form of a pin and/or socket connector of a read and/or write unit of the type for receiving an integrated circuit chip comprising a computer game.

The invention also provides a method for protecting an interface means of the type hereinbefore defined or a read and/or write unit of the type hereinbefore defined in which the read and/or write unit comprises a receiving area for receiving a data carrier, and the interface means is located in or adjacent the receiving area, the method comprising the steps of inserting a carrier means into the receiving area of the read and/or write unit wherein the carrier means carries a protecting means for engaging the interface means, and engaging the interface means with the protecting means when the carrier means is engaged in the receiving area for protecting the interface means from shock.

Further the invention provides a method for protecting an interface means of the type hereinbefore defined or a read and/or write unit of the type hereinbefore defined in which the read and/or write unit comprises a receiving area for receiving a data carrier, and the interface means is located in or adjacent the receiving area, the
5 method comprising the steps of inserting a carrier means into the receiving area of the read and/or write unit wherein the carrier means carries a protecting means for engaging the interface means, and engaging the interface means with the protective means when the carrier means is engaged in the receiving area for protecting the
10 interface means from dirt and dust.

The invention will be more clearly understood from the following description of an embodiment thereof which is given by way of example only with reference to the accompanying drawings, in which:

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Fig. 1 is a perspective view of a protective device according to the invention for protecting an interface means, namely, an read/write head of a read and/or write unit, namely, a disc drive,

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Fig. 2 is an enlarged perspective view of a portion of the protective device of Fig. 1,

Fig. 3 is an underneath plan view of the enlarged portion of Fig. 2,

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Fig. 4 is a top plan view of the enlarged portion of Fig. 2, and

Fig. 5 is a transverse cross-sectional side elevational view of a portion of the protective device on the line V-V of. Fig. 1.

Referring to the drawings there is illustrated a protective device according to the invention indicated generally by the reference numeral 1 for protecting an interface means, in this embodiment of the invention a read/write head 2 of a read and/or write unit, namely, a CD ROM disc drive unit (not shown). The protective device 1 protects the head 2 from shock when the disc drive unit is not in use, and also protects a lens 3 of the head 2 from dust and dirt when the disc drive unit is not in use. The protective device 1 also acts as a cleaning device for cleaning the lens 3 of the read and/or write head 2 as will be described below. The protective device 1 comprises a carrier means, namely, a carrier disc 5 which is similar in size and shape to a CD-ROM disc for engaging in a disc receiving area (not shown) of the disc drive unit. A protecting means for engaging the lens 3 and a portion of the head 2 adjacent the lens 3 comprises a brush member 6 which is carried on a resilient arm 7 which in turn is secured to the carrier disc 5 by any suitable securing means, for example, adhesive. A circular opening 9 through the carrier disc 5 accommodates fibres 10 of the brush member 6 therethrough for engaging the lens 3 of the read/write head 2 when the carrier disc 5 is engaged in the disc receiving area of the disc drive unit. In this embodiment of the invention the brush member 6 is located on the carrier disc 5 so that the position of the brush member 6 on the carrier disc 5 coincides with the rest position of the read/write head 2. In this embodiment of the invention the brush member 6 is located at a position which corresponds with the first track of a normal CD ROM disc so that when the carrier disc 5 is fully inserted in the disc receiving area of the disc drive unit with the carrier disc 5 oriented to align

the brush member 6 with the read/write head 2, the brush member 6 is in engagement with the lens 3 and a portion of the head 2 adjacent the lens 3.

The brush member 6 comprises a base member 12 which is integrally formed with the resilient arm 7, and both are of a resilient plastics material. The fibres 10 of the brush member 6 are relatively resilient, while at the same time being adapted for flexing. The area of the brush member 6, in other words, the circular area of the brush member 6 defined by the fibres 10 when looked at in plan is greater than the major area of the lens 2 and the area of the head 2 adjacent the lens 3 also when looked at in plan. Thus, the brush member 6 entirely covers the lens 3, and a peripheral portion of the brush member 6 extends around the periphery of the lens 3 and the portion of the read/write head 2 adjacent the lens 3 for effectively embracing the lens 3 and the portion of the head 2 adjacent the lens 3, with the lens 3 and the portion of the head 2 nested in the brush member 6.

In this embodiment of the invention the fibres 10 of the brush member 6 are formed by picks or tufts, each of which comprises a plurality of texturized filaments of polyamide – 6.6, and filament diameter 2.2 DTEX (denier). Typically, each pick or tuft is made up of approximately fifty filaments which are grouped together, and may be twisted together. The brush member 6 comprises one pick or tuft per square millimetre. The texturizing of the filaments is carried out by heating, and provides the filaments, and in turn the picks or tufts with an inherent resilience which enhances the cleaning action. The length of the fibres 10 depends on the type of disc drive unit, the read/write head of which is to be protected. However, ideally, the length of the fibres will be such as to allow at least 0.5 to 2mm of projection of the

fibres beyond the lens 3 to ensure that the lens 3 and the portion of the head 2 adjacent the lens 3 are properly nested into the brush member 6.

In use, the protective device is loaded into the disc receiving area of the disc drive unit with the cleaning brush 6 aligned with the read/write head 2 in its rest position
5 when the disc drive unit is deactivated.

The fibres 10 of the carrier disc 5 engage the lens 3 and peripheral fibres of the brush member 6 extend outwardly around the lens 3 and the portion of the read/write head 2 adjacent the lens 3 so that the lens 3 and the portion of the head 2 adjacent
10 the lens 3 are properly nested in the brush member 6. By virtue of the resilience of the fibres 10 and to the fact that the lens 3 and the portion of the read/write head 2 adjacent the lens 3 are nested into the brush member 6, the protective device protects the read/write head from shock while the disc drive unit is not in use.

Additionally, as well as protecting the read/write head 2 from shock, the fact that the lens 3 is nested into the brush member 6 also protects the lens 3 from dust and dirt
15 when the disc drive unit is not in use.

When it is desired to clean the lens 3 of the disc drive unit, with the carrier disc 5 in the disc receiving area of the disc drive unit and the brush member 6 aligned with
20 the read/write head, the disc drive unit is activated. The read/write head commences to move into and out of the brush member 6 in cycles in the direction of the arrows A and B, respectively, in an attempt to focus on data. This cycling of the read/write head 2 into and out of the brush member 6 causes the fibres 10 to wipe the lens 3,
25 thereby cleaning the lens 3. Typically, the cycling of the read/write head 2 into and out of the brush member 6 for focusing the read/write head continues for a number

of focusing cycles, and in general, the number of focusing cycles of the read/write head depends on the particular type of disc drive unit. However, in general, typically the read/write head would cycle into and out of the cleaning brush for at least four cycles. In general, this is sufficient for cleaning a moderately dusty lens. However, if
5 the lens is heavily soiled, the disc drive unit may have to be activated a number of times so that the lens 3 is subjected to many more focusing cycles.

While the protective device according to the invention has been described for protecting a read/write head of a CD ROM disc drive unit from shock, dust and dirt, it
10 is envisaged that the protective device may be used for protecting the head or indeed any other interface means for interfacing with a data carrier of any other read and/or write unit. For example, the protective device may be used for protecting the read and/or write head of any of the following read and/or write units, compact disc player and/or recorder units, CD ROM read and/or write units, digital video disc
15 (DVD) player and/or recorder units, CD interactive drive units, Zip drive units, Jazz drive units, super disc drive units, floppy disc drive units, mini disc drive units, digital camcorders, digital cameras, audio tape drive units, data cartridge drive units, and any other read and/or write units.

20 Where the protective device is adapted for protecting the interface means of any of these read and/or write units, it will be appreciated that an appropriate sized and shaped carrier mean will be provided for engaging in the data carrier receiving area of the read and/or write unit. Needless to say, the brush member will also be appropriately sized, shaped and located for engaging the portion of the interface
25 means to be protected and nested into the brush member.

It will of course be appreciated that any other suitable protecting means may be provided besides a brush member for protecting the read/write head and/or other interface means from shock, dust and dirt. An advantage of providing the protecting means by way of a brush member is that the protective device as well as acting as a protective device also acts as a cleaning device for cleaning the lens and/or any other component of the interface means of the read and/or write unit. Indeed, the protecting means may be provided by any resilient type member, for example, a resilient rubber or plastics material which would resiliently engage the interface means for protecting the interface means from shock. However, in the event of the protecting device being required to only protect the interface means from shock, the size of the protecting means and its area relative to the interface means would not be particularly critical, provided its shape and area was sufficient for engaging the interface means for protecting it from shock. However, where the interface means is also to protect a portion of the interface means from dust and dirt, the area of the protecting means would have to be such as to be of at least similar area to the portion to be protected from dust and dirt, and preferably, the area of the protecting means should be greater than the area of the portion to be protected from dust and dirt. However, in general, if the protecting means is provided by a resilient member, in general, it would have little cleaning capacity, and thus, the protective device in such cases may not act effectively as a cleaning device.

The invention is not limited to the embodiment hereinbefore described and may be varied in construction and detail.

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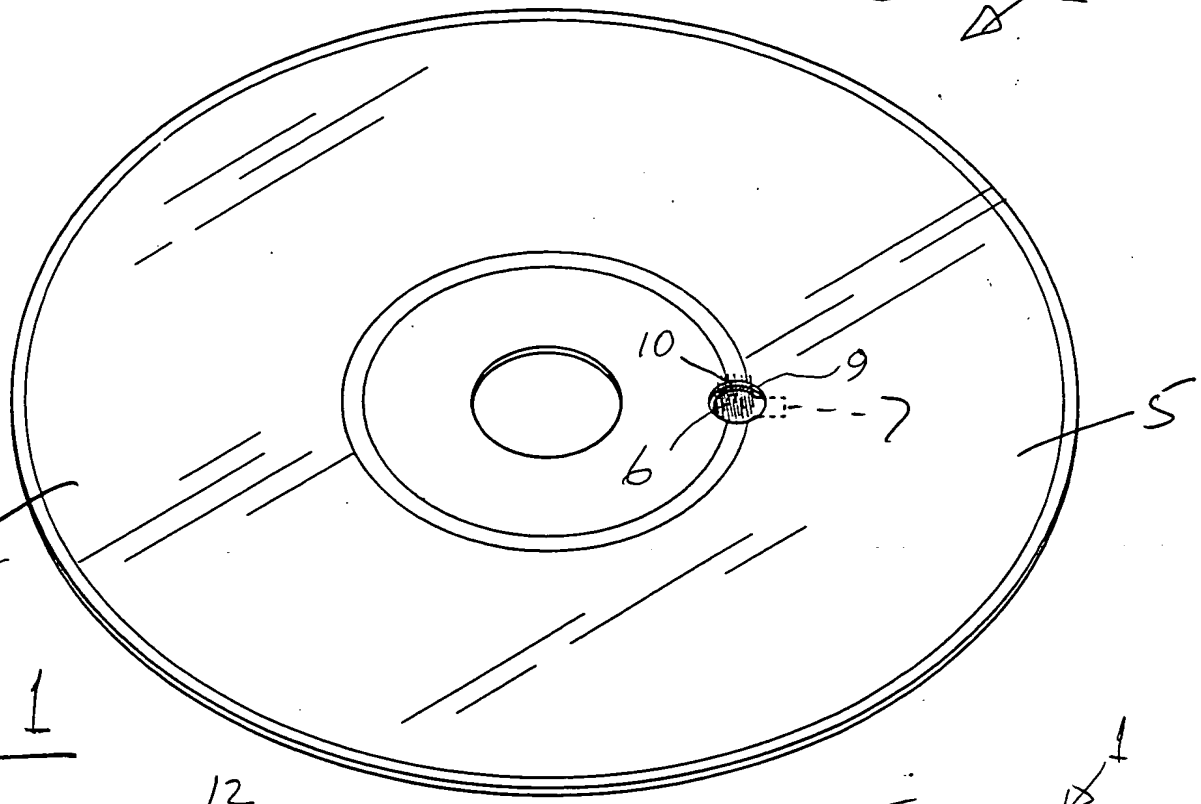


FIG 1

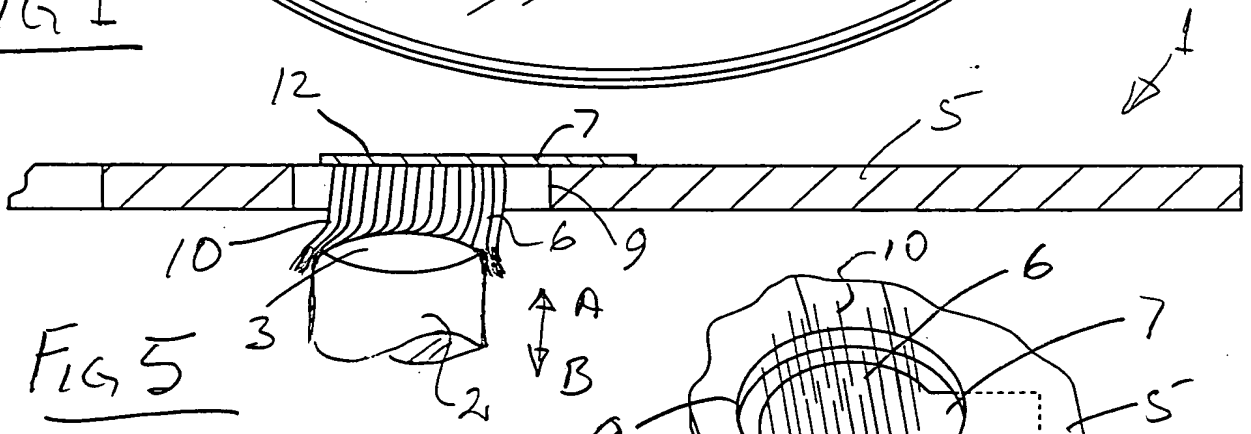


FIG 5

FIG 2

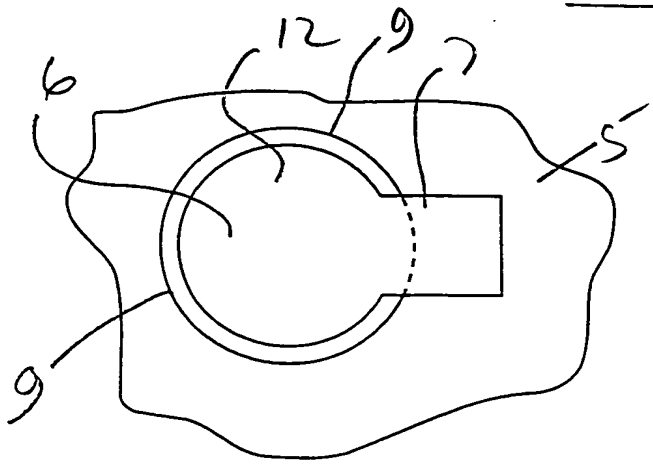
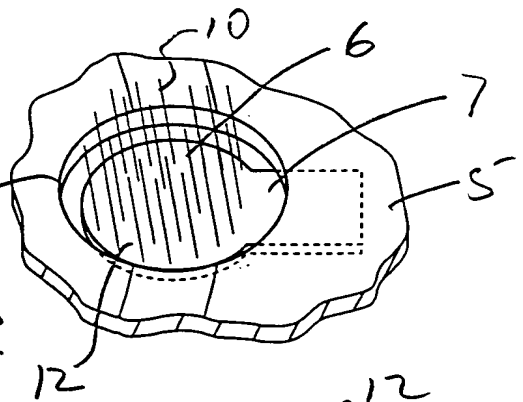


FIG 3

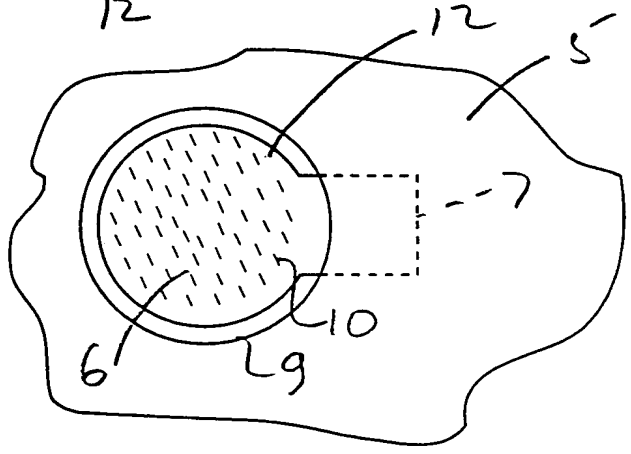


FIG 4

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